

During model building, several parameters and options may be chosen. To build the best model with one algorithm, cross-validation is also used to find the optimum parameters and options. For example, in the process of building a KNN model, cross-validation is used to validate the models built with different number of K, different scaling options, e.g., mean-centering or auto-scaling, and other options, e.g., with PCA or without PCA, to find out the optimum combination of K and other options. In a preferred embodiment, auto-cross-validation can be implemented using a single push-button or two push buttons for ease in use. It will automatically run the processes mentioned above over all the (or any selected) algorithms with the training data set to find out the optimum combination of parameters, scaling options and algorithms.

Once the best fit algorithm and model has been uncovered, the method goes through a discrimination test, step 471. In a specific embodiment, the method compares the results, e.g., fit of data against algorithm, combination of data and other preprocessing information, against confidence factor (if less than a certain number, this does not work). This step provides a final screen on the data, the algorithm used, the preprocessing methods, and other factors to see if everything just makes sense. If so, the method selects the final combination of techniques used according to an embodiment of the present invention.

The above sequence of steps is merely illustrative. The steps can be performed using computer software or hardware or a combination of hardware and software. Any of the above steps can also be separated or be combined, depending upon the embodiment. In some cases, the steps can also be changed in order without limiting the scope of the invention claimed herein. One of ordinary skill in the art would recognize many other variations, modifications, and alternatives. An example according to the present invention is described in U.S. Serial No. 09/802,573 (Attorney Docket No. 18564I-008510US), which is incorporated by reference for all purposes.

The above example is merely an illustration, which should not unduly limit the scope of the claims herein. One of ordinary skill in the art would recognize many other variations, modifications, and alternatives.

It is also understood that the examples and embodiments described herein are for illustrative purposes only and that various modifications or changes in light thereof will be suggested to persons skilled in the art and are to be included within the spirit and purview of this application and scope of the appended claims. All publications,